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HYPACK® ADCP Device Setup with Nortek

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Configuring the Nortek ADCP to interface with HYPACK® is a two-step process. You must first use an Ethernet connection to access the Nortek firmware, then configure the ADCP driver in HYPACK® HARDWARE.

NORTEK SETUP

First, connect to the Nortek via the Ethernet connection and open the Nortek firmware in your web browser (192.168.1.167). The important pages are the Measurement Configuration and Instrument Settings.

In the **Instrument Settings Page**, confirm your serial port settings are correct.

FIGURE 1. *Instrument Settings*

The screenshot shows a web browser window with the URL `http://192.168.1.167/cgi-bin/cgi_UnistGetConfig`. The page title is "AD2CP_265 NortekDVL". The browser's address bar shows "VPN Service Portal". The page header includes "Name AD2CP_265", "IP 192.168.1.167", "Freq 1000kHz", "SerialNo 100093", and "FW 1.4-3815.4039_2 / 163". The main content area is titled "NortekDVL" and features a sidebar with navigation links: "Measurement Configuration", "Instrument Settings" (highlighted), "Network Configuration", "Maintenance", "Logs", "Security", "Data Download (HTTP)", and "Data Download (FTP)". The "Instrument Settings" section contains the following fields and options:

Instrument Settings	
Co-ordinate Rotation (deg)	0.000 (-180 - 180)
Pressure Offset (dBar)	9.50 (0 - 11)
LED Selection	ON
Serial Port Type	232
Serial Port Baud Rate	115200

Below the fields are "Submit" and "Reset" buttons. The right side of the page contains detailed descriptions for each setting:

- Co-ordinate Rotation:** This is the amount that instrument's X (forward) marker is rotated to the vehicles forward axis. Estimates are transformed to the vehicles forward axis according to the value entered in this field.
- Pressure Offset:** The instrument measures absolute pressure. This is the pressure reading for offsetting absolute to relative pressure. Atmospheric pressure is typically 9.5 dBar, and therefore is the factory setting. For the purpose of reference, 1 dBar is equivalent to the pressure at 1 meter in fresh water.
- LED Selection:** This controls how the LED operates. There are three settings: ON allows the LED to indicate operation and modes; OFF disables the LED completely; ON24H enables the LED for 24 hours after the instrument starts pinging.
- Serial Port Type:** This sets the serial communication to either RS232 or RS422. The intention is to allow the end user to configure the instrument through the web interface, remove power, and then have it field ready for serial communications the next time it is powered up through the serial interface cable. Serial communication is not possible when power is applied through the Ethernet interface cable.
- Serial Port Baud Rate:** This is the baud rate of serial communication when powered through the serial interface cable. Serial communication is not possible when power is applied through the Ethernet interface cable.
- Submit:** This sends the configuration to the instrument and starts measurement immediately.

The footer of the page shows "Nortek AS" on the left and "Help" on the right.

In the **Measurement Configuration** tab, select the INSTR Trigger Mode and ensure the Bottom Tracking and Current Profiling are set to support the Nortek format.

FIGURE 2. Measurement Configuration

The screenshot displays the Nortek AD2CP web interface. The browser address bar shows the URL `http://192.168.1.167/cgi-bin/cgi_getTopPage`. The page title is "VPN Service Portal". Below the title bar, there is a status bar showing "Name AD2CP", "IP 192.168.1.167", "Freq", "SerialNo", and "FW UNKNOWN. /".

The main content area is divided into two columns. The left column contains a sidebar with navigation links: "Measurement Configuration" (selected), "Instrument Settings", "Network Configuration", "Maintenance", "Logs", "Security", "Data Download (HTTP)", and "Data Download (FTP)".

The right column displays the "Measurement Configuration" settings. It is organized into three main sections:

- DVL Configuration:**
 - Trigger Mode: **INTSR** (dropdown)
 - Sample Rate (Hz): **4** (dropdown)
 - Speed of Sound (m/s): ☐ Measured ☒ Fixed **1498.0** (text input)
 - Salinity (ppt): **35.0** (text input)
 - Enable Data Recording: ☐
 - Data Recording Filename:
- Bottom Track:**
 - Configured Vel Range (m/s): **5.00**
 - Horizontal Vel Range (m/s): **11.83**
 - Blanking Distance (m): **0.01** (range: 0.01 - 5.00)
 - Range (m): **1.50** (range: 1.01 - 50.00)
 - Transmit Power (dB): **USER** (dropdown) **-20.0** (range: -20.00 - -2.00)
 - Bottom Track Data: **DF21 DVL BT Binary** (dropdown)
 - Enable Water Track: ☐
 - Water Track Data: **DF22 DVL WT Binary** (dropdown)
- Current Profiling:**
 - Enable Current Profiling: ☒
 - Interleave Ratio: **2** (range: 2 - 20)
 - Cell Size (m): **0.50** (range: 0.20 - 2.00)

A right-hand pane titled "DVL Configuration" provides detailed explanations for the DVL settings:

- Trigger Mode:** The trigger mode specifies what controls the acoustic pinging. This is either the instrument and its internal timing mechanism (INTSR), trigger from a command (SERIAL) or a hardware based trigger (TTL or RS485 input lines). For the hardware trigger there are three options: rising edge, falling edge or both edges. The hardware triggers will be ignored if they occur at a faster rate than what is possible to process for the configured range.
- Sample Rate:** The data sampling rate (controlled by internal timers) used when INTSR is selected. The sample rate is ignored for all other configured triggers.
- Speed of Sound:** This is the speed at which sound travels through the water and is important for estimating velocity in the Doppler processing. The user may select between:
 - Measured:** which is estimated from the measured temperature, the measure pressure and the configured salinity or
 - Fixed:** which is a fixed value. End users using external estimates of speed of sound wishing to apply the linear corrections outside of the DVL estimation process should use this setting.
- Salinity:** This is the estimated salinity (in parts per thousand) for the location the DVL will be operating. The typical value is 35 ppt for sea water. Configuration of this value is only relevant if the end user sets the speed of sound configuration to **Measured**.
- Enable Data Recording:** Check this box if you wish to log data to the internal SD memory card.
- Data Recording Filename:** This is the name of the file for the data recording file. If the same name exists on the recorder then data is appended to the existing file. If the recorder gets full, the measurement continues but data is no longer stored to the recorder.
- Bottom Track:**
 - Configured Velocity Range:** This is a fixed value representing the range of velocity along each

The bottom status bar shows "Nortek AS" and "Couldn't access local configuration" on the left, and "Help" on the right.

HYPACK® SETUP

Once you are done in the Nortek firmware, disconnect the Ethernet connection and setup the ADCP driver in **HARDWARE**.

1. **Add the ADCP Driver to your configuration.**
2. **In the driver setup, select Nortek from the drop-down list and click [OK].**

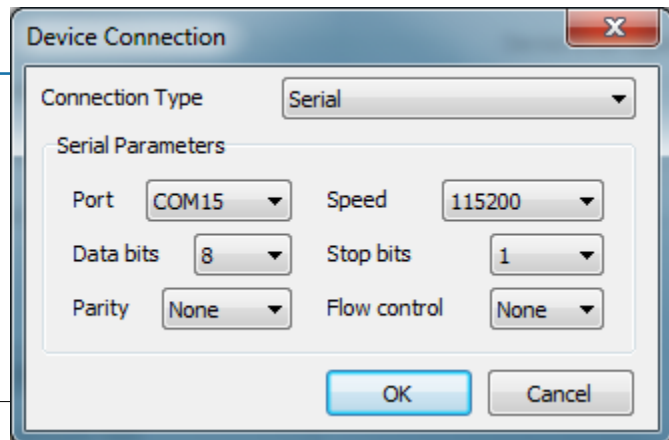
FIGURE 3. *Driver Setup*



3. In the **Survey Connect** Tab, set the **Device Connection** as Serial, enter your port number and baud rate, then click [OK].

FIGURE 4. *Configuring the Serial Connection*

4. **Test the device is connected and working properly.** [Test Device] launches a sample Device window, as will appear in SURVEY. If all connections are correct and data is properly received, the scrolling data display draws in the device window.



NOTE: If the scrolling display is initially blank, click the green Go button to send the start command to the device.